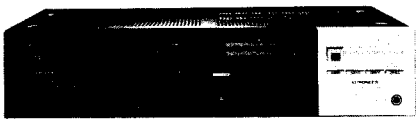
PIONEER®

# Service Manual

**CIRCUIT DESCRIPTIONS**
**REPAIR & ADJUSTMENTS**



**ORDER NO.**
**ARP-104-0**

## STEREO AMPLIFIER

# SA-530

MODEL SA-530 COMES IN SIX VERSIONS DISTINGUISHED AS FOLLOWS:

| Type | Voltage | Remarks |
|---|---|---|
| KU | AC 120V only | U.S.A. model |
| S | AC 110V, 120V, 220V and 240V (Switchable) | General export model |
| YP | AC 240V only | Australia model |
| HE | AC 220V and 240V (Switchable) | Europe model |
| HB | AC 220V and 240V (Switchable) | United Kingdom model |
| HEZ | AC 220V and 240V (Switchable) | West Germany model |

- **This service manual is applicable to the KU type. When repairing the S, YP, HE, HB and HEZ types, please see page 20~26.**
- **Ce manuel d'instruction se refère au mode de réglage, en fançais.**
- **Este manual de servicio trata del método de ajuste escrito en español.**

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# 1. SPECIFICATIONS

## Amplifier Section

Continuous average power output is 35 watts* per channel, min., at 8 ohms from 20 hertz to 20,000 hertz with no more than 0.05% total harmonic distortion.

Total Harmonic Distortion (20Hz to 20,000Hz, 8 ohms, from AUX/VIDEO)
- 17.5 watts per channel power output ..... No more than 0.03%

Intermodulation Distortion (50Hz : 7,000Hz = 4 : 1, 8 ohms, from AUX/VIDEO)
- Continuous rated power output .. No more than 0.08%
- 17.5 watts per channel power output ..... No more than 0.05%

Damping Factor (1kHz, 8 ohms) ..... 30

Input (Sensitivity/Impedance)
- PHONO ..... 2.5mV/50 kilohms
- TUNER, AUX/VIDEO, TAPE 1,2/ADAPTOR ..... 150mV/50 kilohms

Phono Overload Level (T.H.D. 0.01%, 1,000Hz)
- PHONO ..... 150mV

Output (Level)
- TAPE REC 1,2/ADAPTOR ..... 150mV
- Speaker ..... A, B, A+B, OFF

Frequency Response
- PHONO (RIAA Equalization) ..... 20Hz to 20,000Hz ±0.5dB
- TUNER, AUX/VIDEO, TAPE PLAY 1,2/ADAPTOR ..... 10Hz to 60,000Hz ±2dB

Tone Control
- BASS ..... ±10dB (100Hz)
- TREBLE ..... ±10dB (10,000Hz)

Loudness Contour
(Volume control set at -40dB position) ... +6dB (100Hz)

Hum and Noise (IHF, short-circuited, A network)
- PHONO ..... 72dB
- TUNER, AUX/VIDEO, TAPE PLAY 1,2/ADAPTOR ..... 97 dB

## Miscellaneous

Power Requirements ..... AC 120V, 60Hz

Power Consumption ..... 95W (UL)

Dimensions ..... 420(W) x 97(H) x 275(D) mm
16-9/16(W) x 3-13/16(H) x 10-13/16(D) in

Weight (without package) ..... 5.1kg (11 lb 4oz)

## Furnished Parts

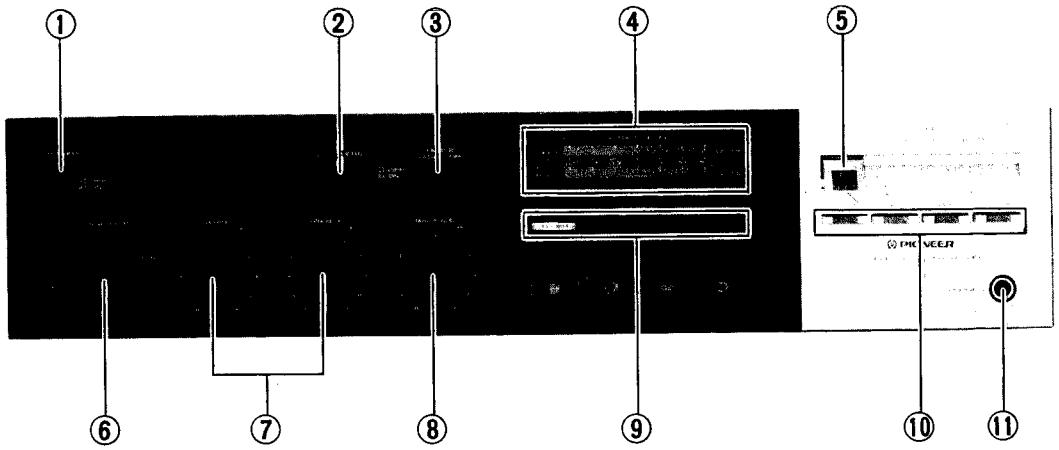
Operating Instructions ..... 1

*NOTE:*

*Specifications and the design subject to possible modifications without notice due to improvements.*

** Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifiers.*

# 2. FRONT PANEL FACILITIES




## ① POWER SWITCH

Push this switch to turn on or turn off power.

## ② LOUDNESS SWITCH

Set this switch to ON when listening at low volume, bass will be emphasized to compensate for human listening characteristics and provide natural listening curve.

## ③ TAPE 2/ADAPTOR SWITCH

Set this switch to ON when using a graphic equalizer or a second tape deck (or any equipment) connected to the TAPE 2/ADAPTOR terminals.

## ④ POWER METER

The power meter shows the output level in watts when speaker systems with a nominal impedance of 8 ohms have been connected to the speaker terminals of this unit.

## ⑤ VOLUME CONTROL

Slide this control to adjust the output level of the speakers and the headphones. Output is minimum at 0 and increases as the control is slided rightward.

## ⑥ SPEAKERS SELECTOR

Use this selector to select the speaker system.

**OFF** : Use this setting when listening through headphones (no sound comes out of the speakers.)

**A** : Sound is heard from speakers connected to the A speaker terminals.

**B** : Sound is heard from speakers connected to the B speaker terminals.

**A+B** : Sound is heard from speakers connected to both A and B speaker terminals.

## ⑦ BASS AND TREBLE CONTROLS

Use these controls to adjust the tone. The right one controls treble and the left one controls bass. Turning knob clockwise accentuates the bass or treble, and turning counterclockwise attenuates the bass or treble.

## ⑧ BALANCE CONTROL

This control should normally be set to the center position, when the output from the left and right speakers or headphones is not the same, adjust by turning the control clockwise or counterclockwise.

## ⑨ FUNCTION INDICATORS

These indicate the function switch positions.

## ⑩ FUNCTION SWITCHES

Use these switches to select the program sources.

**TUNER** : Push when listening to a broadcast on the tuner which you have connected to the rear panel TUNER terminals.

**PHONO** : Push when playing records on the turntable which you have connected to the rear panel PHONO terminals.

**TAPE 1** : Push when playing back tapes on a tape deck which you connected to the rear panel TAPE1 terminals.

**AUX/VIDEO**: Push when using a component which you have connected to the rear panel AUX/VIDEO terminals.

## ⑪ HEADPHONE JACK

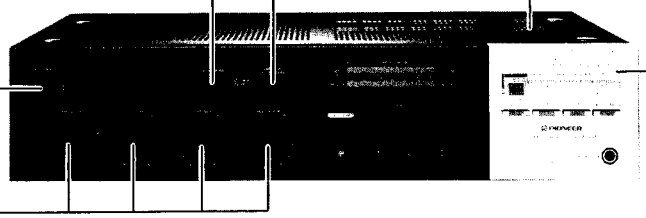
Plug headphones into this jack for private listening through them. Set the SPEAKERS selector to OFF.

# 3. PARTS LOCATION

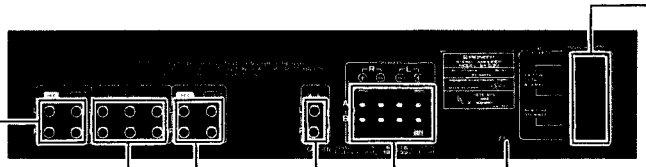
*NOTES:*

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  *★★ GENERALLY MOVES FASTER THAN ★.*
  *This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.*

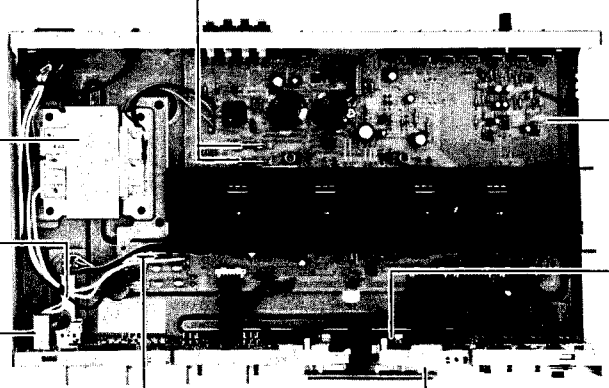
## Front Panel



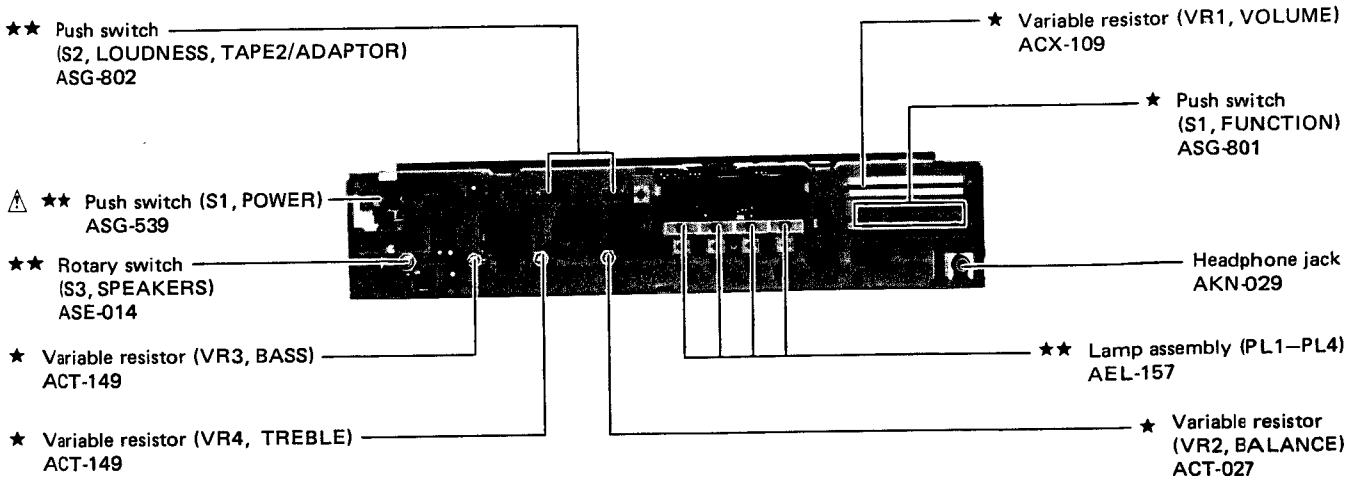

## Rear Panel




## Top View with Bonnet Case Removed



### Front View with Front Panel Removed




# 4. DISASSEMBLY PROCEDURES

### Front Panel Assembly

1. Remove the bonnet case by unscrewing the three screws on the rear panel.
2. Unscrew the two screws ① holding the front panel assembly in place and remove the four rotary knobs.
3. Press down on the three hooks on the front panel assembly (indicated by the three arrows) with a screwdriver to release the panel holder and lock. Then, gently pull the panel outward. (The bottom of the panel assembly is also locked in three places by hooks, so remove the panel very carefully.)

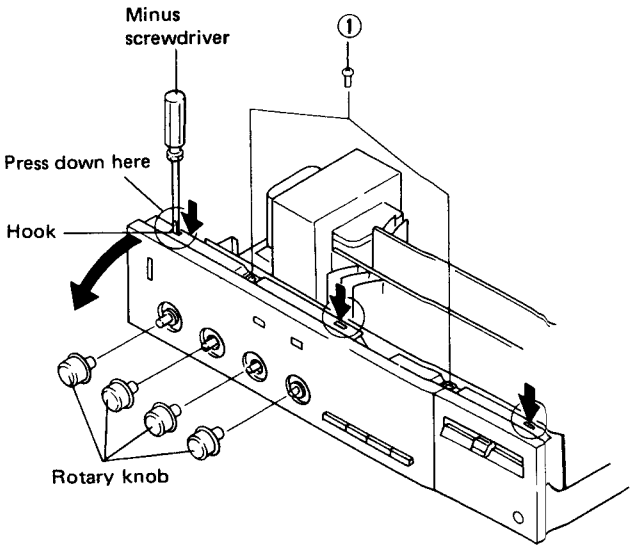
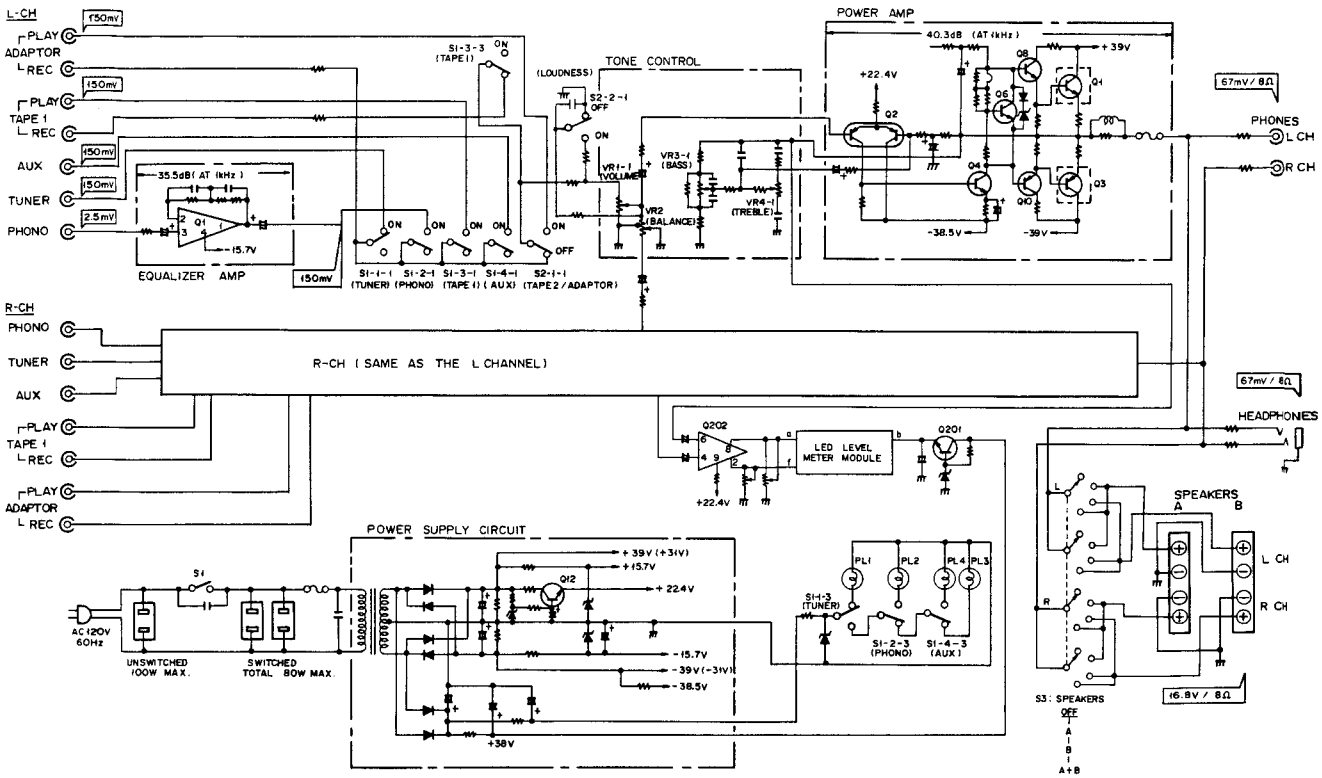



Fig. 4-1 Removing the front panel assembly

# 5. BLOCK DIAGRAM




# 6. CIRCUIT DESCRIPTIONS

### Equalizer Amplifier

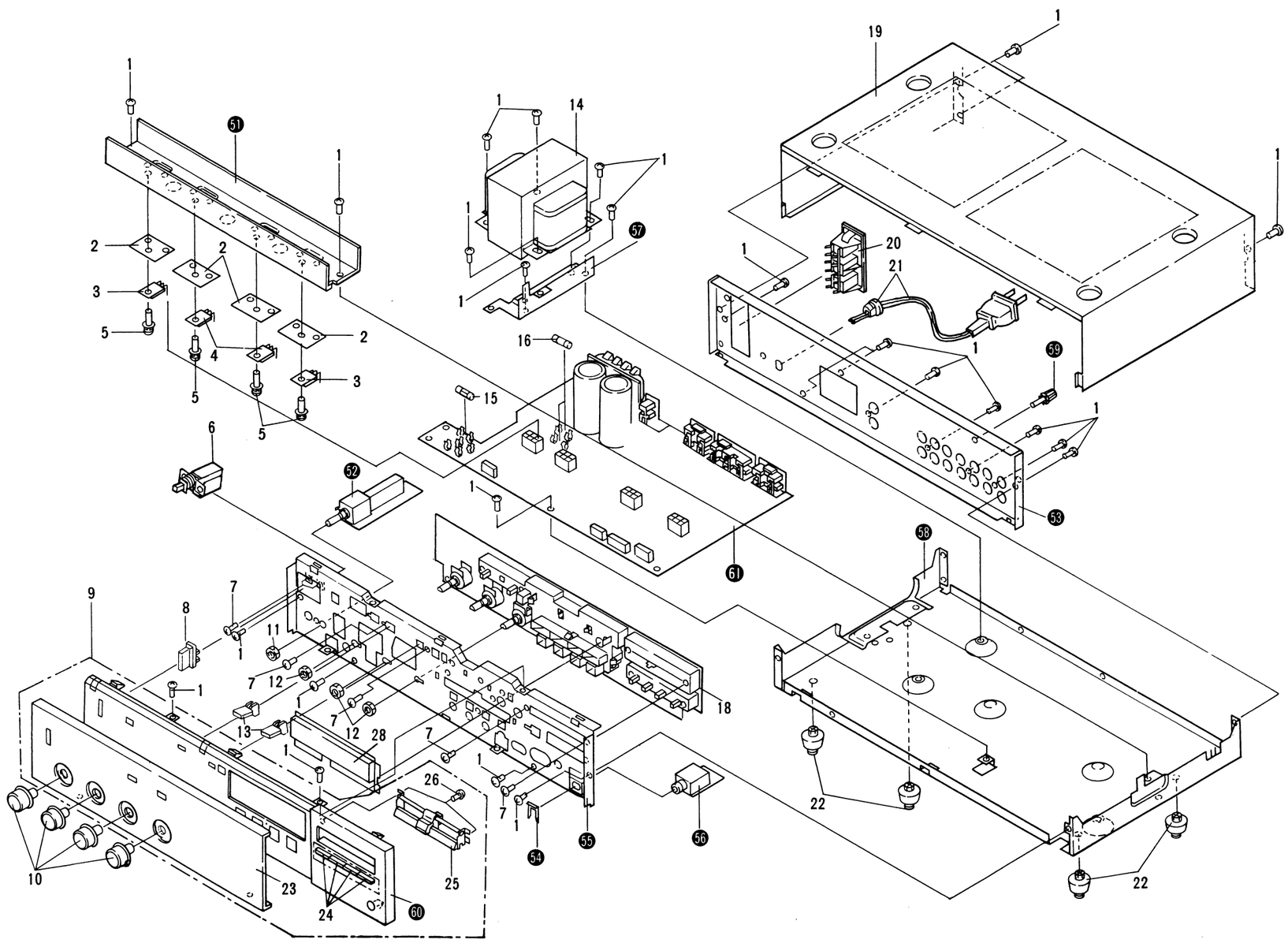
The equalizer amp uses a low-noise IC (NJM 4558DX) that contains both the left and right channel circuits. This IC uses a balanced positive/negative power supply to permit the more than sufficient permissible input level of 150mV (at 1kHz, 0.01%THD).

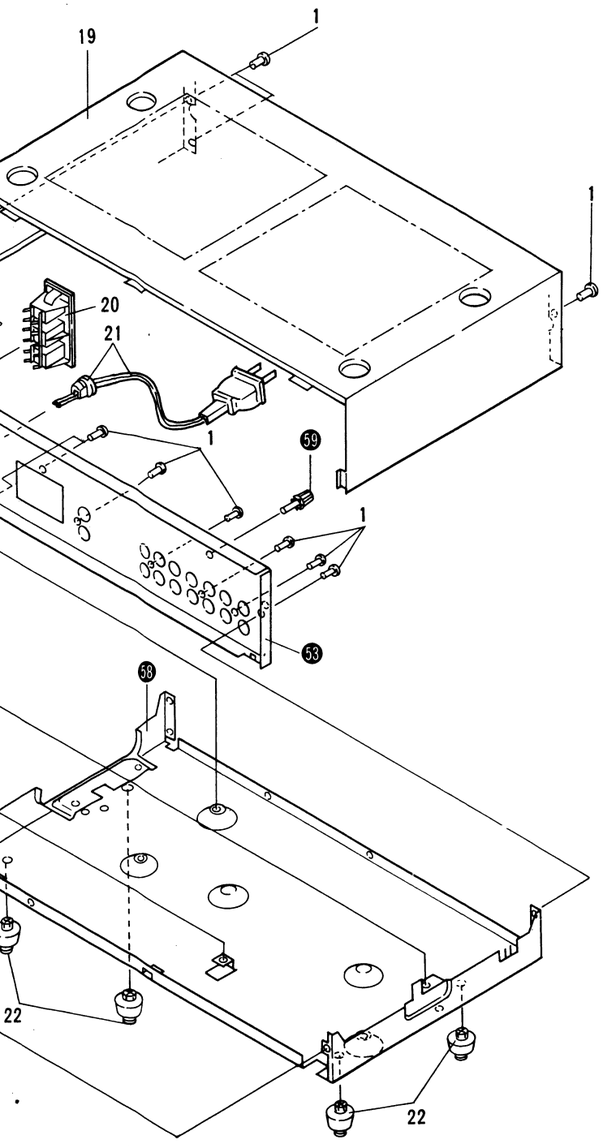
### Power Amplifier

This all-stage direct-coupled pure complementary SEPP circut features a differential amplifier in the first stage, and incorporates the tone control circuits in the NFB loop.

The power stage is a complementary 2-stage Darlington connection, resulting in an output power rating of 35W+35W (8Ω, 20Hz~20kHz), harmonic distortion of less than 0.05%.

## 7. EXPLODED VIEW






## Parts List

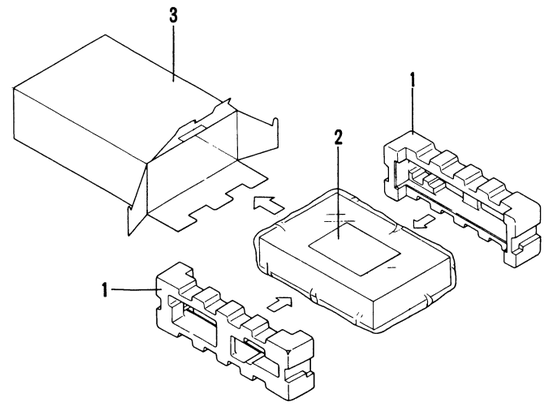
*NOTES:*
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ *GENERALLY MOVES FASTER THAN* ★.
  *This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.*

| Mark | No. | Part No. | Description |
|---|---|---|---|
| | 1. | BBZ30P080FZK | Screw 3 x 8 |
| | 2. | AEC-818 | Mica wafer |
| ★★ | 3. | 2SC2579/A/-O* (2SC2579/A/-P)* (2SC2579/A/-Y)* | Transistor (Q1, Q2) |
| ★★ | 4. | 2SA1104/A/-O* (2SA1104/A/-P)* (2SA1104/A/-Y)* *hfe of Q1—Q4 should have the same value. | Transistor (Q3, Q4) |
| | 5. | ABA-258 | Screw ϕ3 |
| ⚠ ★★ | 6. | ASG-539 | Push switch (S1, POWER) |
| | 7. | PMZ30P060FMC | Screw 3 x 6 |
| | 8. | AAD-417 | Push knob A (POWER) |
| | 9. | ANM-205 | Front panel assembly |
| | 10. | AAB-283 | Rotary knob (SPEAKERS, BASS, TREBLE, BALANCE) |
| | 11. | NK90FUC | Nut M9 |
| | 12. | B71-010 | Nut M7 |
| | 13. | AAD-418 | Push knob B (LOUDNESS, TAPE2/ADAPTOR) |
| ⚠ ★ | 14. | ATT-895 | Power transformer (T1, 120V) |
| ⚠ ★★ | 15. | AEK-124 | Fuse (FU1, 3.15A) |
| ⚠ ★★ | 16. | AEK-126 | Fuse (FU2, FU3, 5A) |
| | 17. | ..... | |
| | 18. | AWG-084 | Control assembly |
| | 19. | ANE-353 | Bonnet case |
| ⚠ | 20. | AKP-501 | AC socket (AC OUTLETS) |
| ⚠ | 21. | ADG-052 | AC power cord |
| | 22. | AEC-784 | Foot assembly |
| | 23. | ANM-204 | Front panel cover |
| | 24. | AAD-419 | Push knob C (TUNER, PHONO, TAPE1, AUX) |
| | 25. | AXC-012 | Slide knob assembly |
| | 26. | PTZ26P080FMC | Screw 2.6 x 8 |
| | 27. | AEC-327 | Strain relief |
| ★ | 28. | AAV-303 | LED level meter module |
| ⚠ | | ACG-017 | Ceramic capacitor (0.01/AC125V) |
| | 51. | | Heat sink |
| | 52. | | Switch assembly |
| | 53. | | Rear panel |
| | 54. | | Mounting plate |
| | 55. | | Panel stay |
| | 56. | | Headphone assembly |
| | 57. | | Transformer frame |
| | 58. | | Chassis |
| | 59. | | Terminal (GND) |
| | 60. | | Front panel base |
| | 61. | | AF assembly |

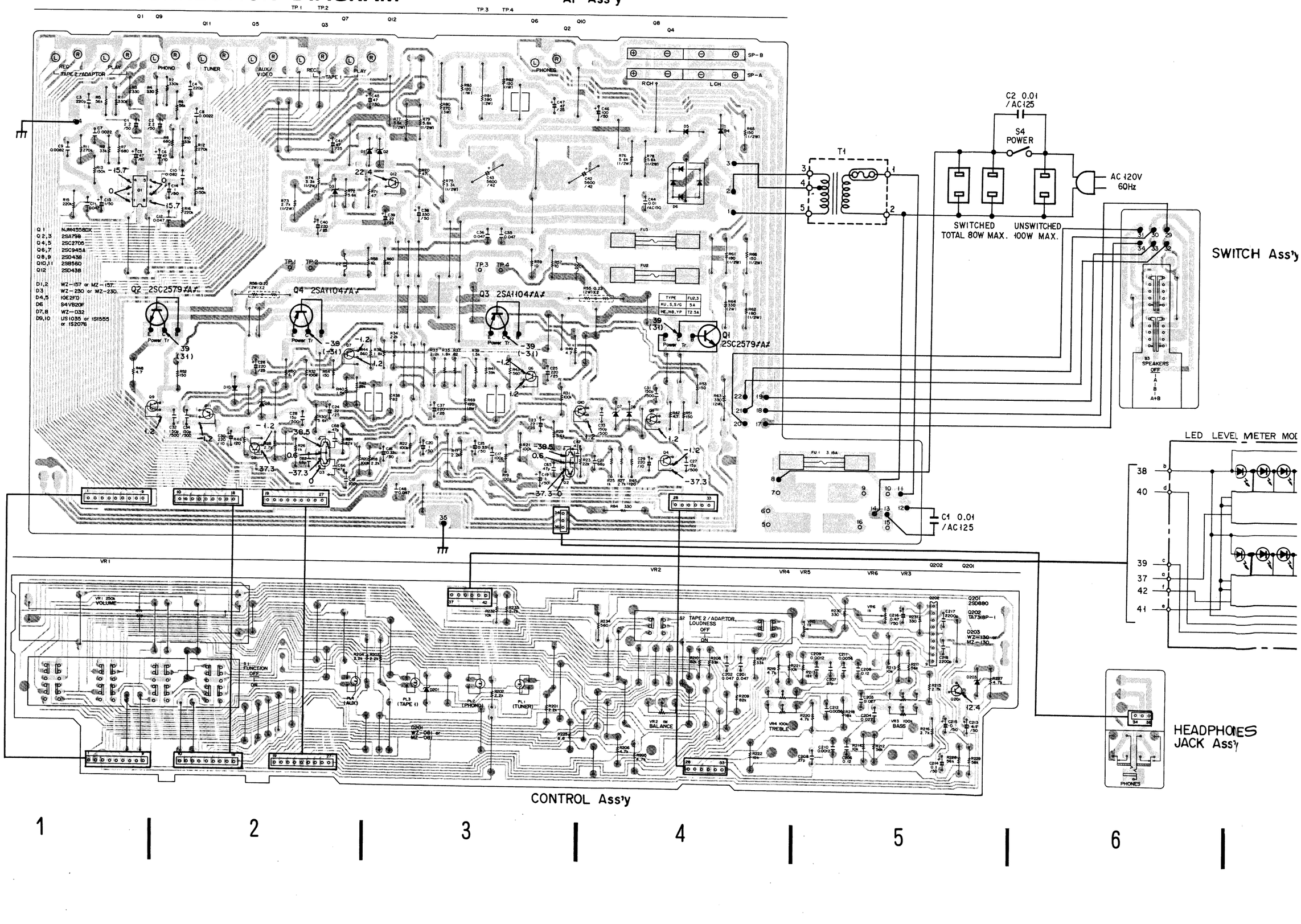
# 8. PACKING

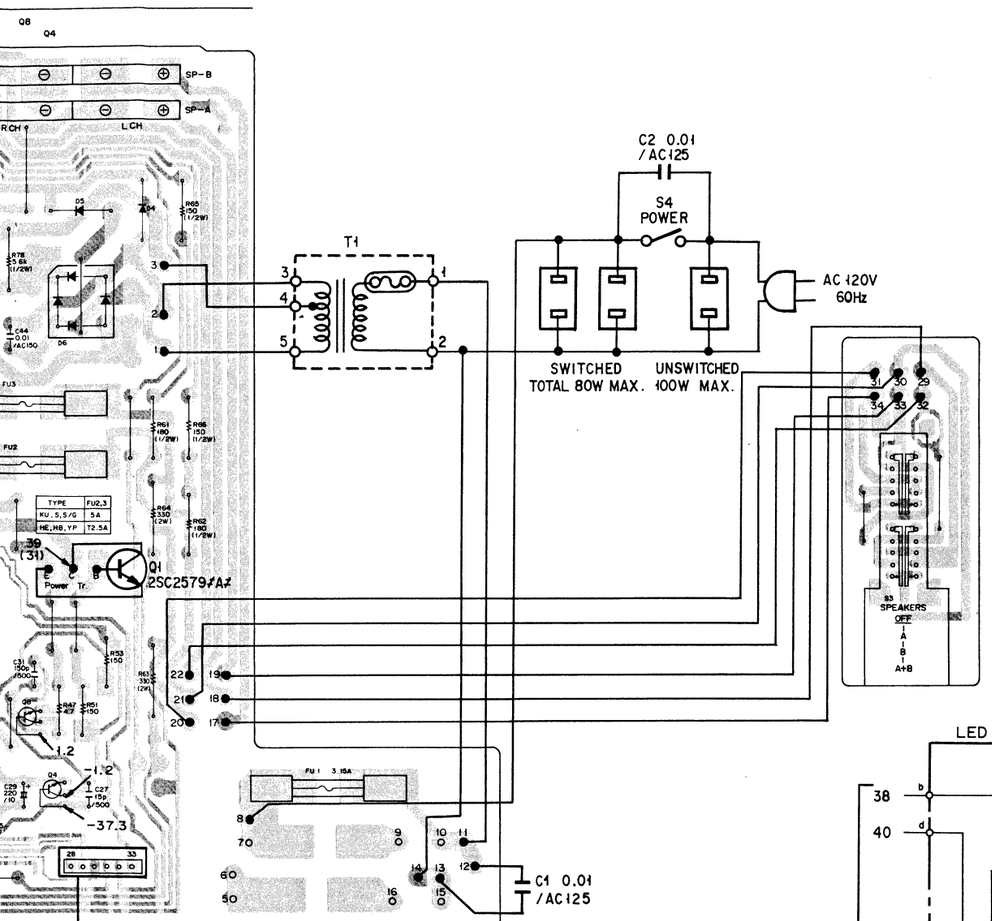
## Parts List

| Mark | No. | Part No. | Description |
|---|---|---|---|
| | 1. | AHA-298 | Front rear pad |
| | 2. | ARB-476 | Operating instructions (English) |
| | 3. | AHE-030 | Packing case |

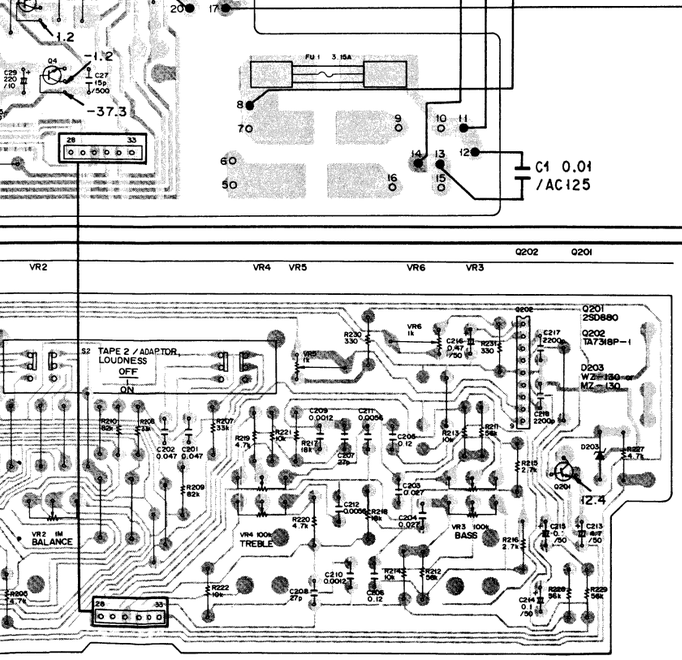


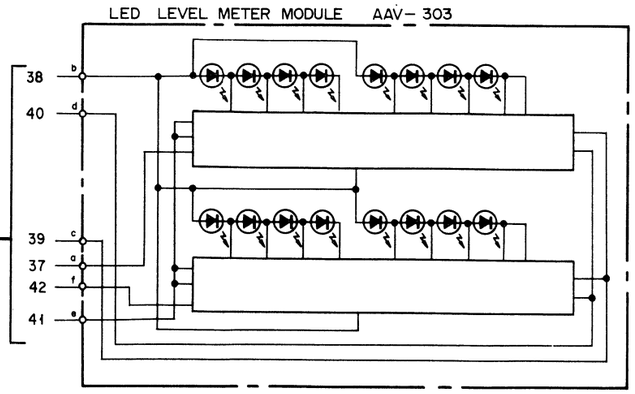
# 9. P.C. BOARD CONNECTION DIAGRAM

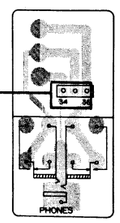





SWITCH Ass'y



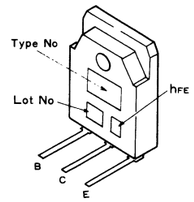




HEADPHONES JACK Ass'y

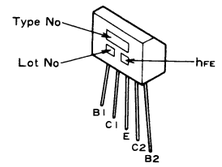
## External Apperance of Transistors and ICs

**2SA1104/A/ 2SC2579/A/**

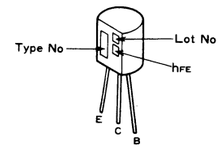



A

**2SA798**

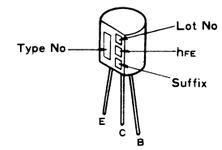



**2SC2705**

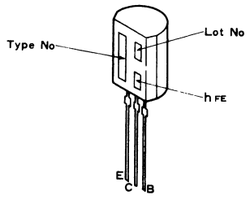



B

**2SC945A**

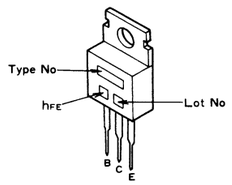



**2SD438**

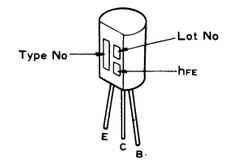



C

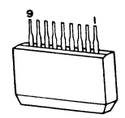
**2SD880**



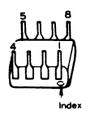

**2SB560**




**TA7318P-1**



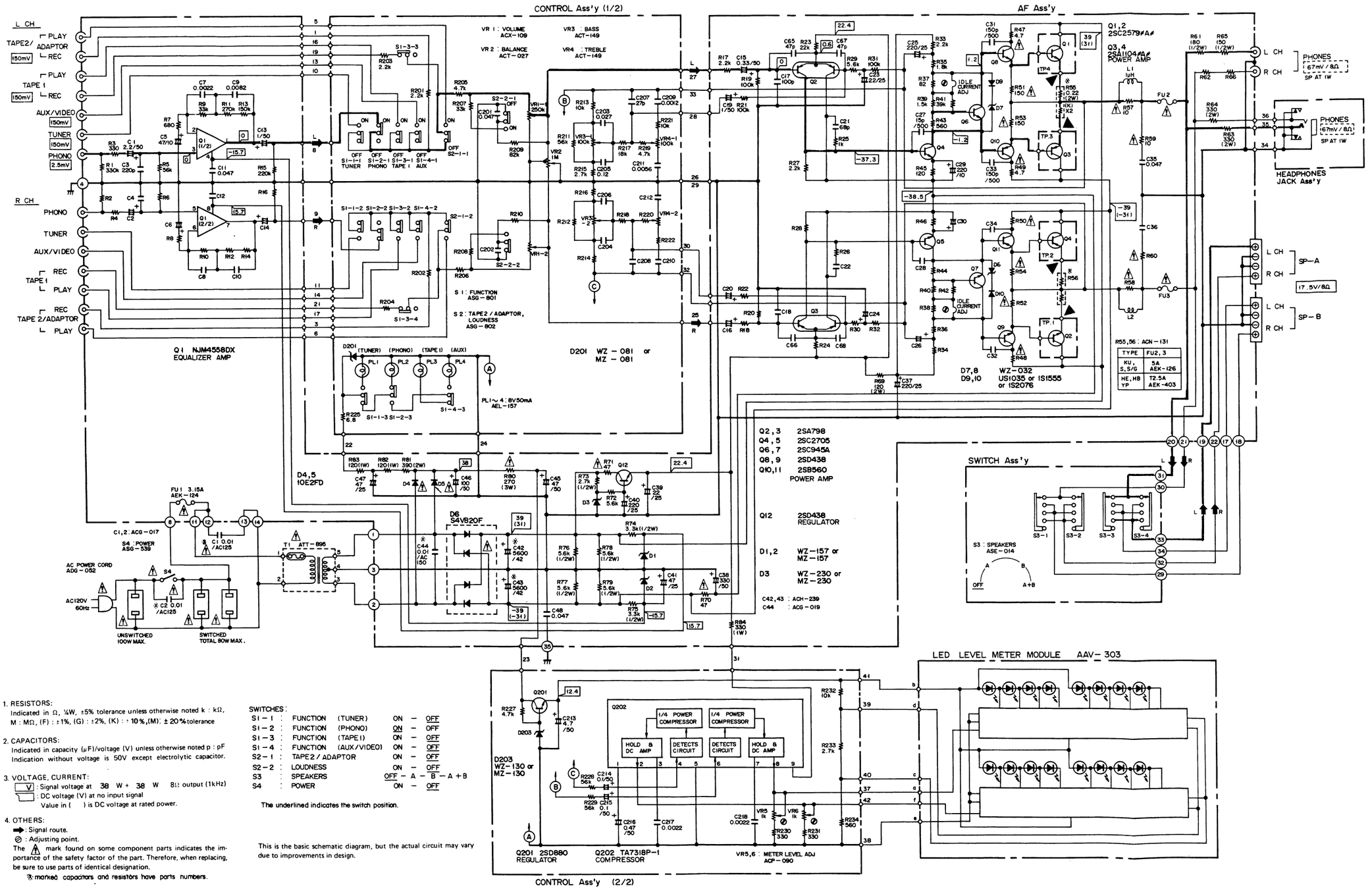

**NJM4558-DX**




D

# 10. SCHEMATIC DIAGRAM

*NOTE:*
*The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.*




1. RESISTORS:
Indicated in Ω, ¼W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10%, (M) : ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
V : Signal voltage at 38 W + 38 W 8Ω output (1kHz)
: DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.

4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

| SWITCHES: | | | | |
|---|---|---|---|---|
| S1-1 | : | FUNCTION | (TUNER) | ON – OFF |
| S1-2 | : | FUNCTION | (PHONO) | ON – OFF |
| S1-3 | : | FUNCTION | (TAPE1) | ON – OFF |
| S1-4 | : | FUNCTION | (AUX/VIDEO) | ON – OFF |
| S2-1 | : | TAPE2 / ADAPTOR | | ON – OFF |
| S2-2 | : | LOUDNESS | | ON – OFF |
| S3 | : | SPEAKERS | | OFF – A – B – A+B |
| S4 | : | POWER | | ON – OFF |

The underlined indicates the switch position.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

# 11. PARTS LIST

*NOTES:*

- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*
  *Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).*

| | | | |
|---|---|---|---|
| *560Ω* | *56 x 10¹* | *561* ..... | *RD¼PS 5610 J* |
| *47kΩ* | *47 x 10³* | *473* ..... | *RD¼PS 4730 J* |
| *0.5Ω* | *0R5* ..... | | *RN2H 0R50 K* |
| *1Ω* | *010* ..... | | *RS1P 0100 K* |

  *Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).*

| | | | |
|---|---|---|---|
| *5.62kΩ* | *562 x 100* | *5621*..... | *RN¼SR 5621 F* |

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  *★★ GENERALLY MOVES FASTER THAN ★.*
  *This classification shall be adjusted by each distributor because it depends on model number , temperature, humidity, etc.*

## MISCELLANEOUS PARTS

### P.C. BOARD ASSEMBLIES

| Mark | Part No. | Symbol & Descritpion |
|---|---|---|
| | AWK-199 | AF assembly |
| | AWG-084 | Control assembly |

### OTHERS

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ⚠ ★★ | AEK-124 | FU1 | Fuse (3.15A) |
| ⚠ ★★ | AEK-126 | FU2, FU3 | Fuse (5A) |
| ★★ | 2SC2579/A/-O* (2SC2579/A/-P)* (2SC2579/A/-Y)* | Q1, Q2 | Transistor |
| ★★ | 2SA1104/A/-O* (2SA1104/A/-P)* (2SA1104/A/-Y)* | Q3, Q4 | Transistor |

*hfe of Q1—Q4 should have the same value.

| | | | |
|---|---|---|---|
| ⚠ ★★ | ASG-539 | S1 | Push switch (POWER) |
| ⚠ | ACG-017 | C1, C2 | Ceramic capacitor (0.01/AC125V) |
| ⚠ | AKP-501 | AC socket (AC OUTLETS) | |
| | AEC-818 | Mica wafer | |
| ⚠ | ADG-052 | AC power cord | |

## CONTROL ASSEMBLY (AWG-084)

### CAPACITORS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | CKDYF 473Z 50 | C201, C202 |
| | CQMLA 124K 50 | C205, C206 |
| | CEA 4R7M 50L | C213 |
| | CEA 0R1M 50L | C214, C215 |
| | CEA R47M 50L | C216 |
| | CQMA122K 50 | C209, C210 |
| | CQMA 562K 50 | C211, C212 |
| | CQMA 273K 50 | C203, C204 |
| | CCDSL 270J 50 | C207, C208 |
| | CKDYB 222K 50 | C217, C218 |

### RESISTORS

*Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.*

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★ | ACX-109 | VR1 | Variable (VOLUME) |
| ★ | ACT-027 | VR2 | Variable (BALANCE) |
| ★ | ACT-149 | VR3, VR4 | Variable (BASS, TREBLE) |
| ★ | ACP-090 | VR5, VR6 | Semi-fixed (METER LEVEL ADJ) |
| | RD¼PM □□□J | R201—R222, R225, R227—R234 | |

### SEMICONDUCTORS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| ★★ | 2SD880 | Q201 |
| ★★ | TA7318P-1 | Q202 |
| ★ | WZ-081 (MZ-081) | D201 |
| ★ | WZ-130 (MZ-130) | D203 |

### OTHERS

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★★ | ASG-801 | S1 | (FUNCTION) |
| ★★ | ASG-802 | S2 | (TAPE2/ADAPTOR, LOUDNESS) |
| ★ | AAV-303 | LED level meter module | |
| ★ | AEL-157 | PL1—Pl4 | Lamp assembly (TUNER, PHONO, TAPE1, AUX) |



## AF ASSEMBLY (AWK-199)

### AF assembly

### CAPACITORS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | ACH-239 | C42, C43 Electrolitic capacitor (5600/42V) |
| | ACG-019 | C44 Ceramic capacitor (0.01/AC150V) |
| | CEANL 2R2M 50 | C1, C2 |
| | CEA 101M 50L | C46 |
| | CEA 221M 25L | C25, C26, C37, C40 |
| | CEA 331M 50L | C38 |
| | CEA R33M 50L | C15, C16 |
| | CEANL 010M 50 | C19, C20 |
| | CEA 010M 50L | C13, C14 |
| | CEA 220M 25L | C23, C24, C39 |
| | CEA 470M 10L | C5, C6 |
| | CEA 470M 25L | C41, C47 |
| | CEA 470M 50L | C45 |
| | CEA 221M 10L | C29, C30 |
| | CQMA 222J 50 | C7, C8 |
| | CQMA 822J 50 | C9, C10 |
| | CCDSL 150K 500 | C27, C28 |
| | CCDSL 151K 500 | C31—C34 |
| | CCDSL 680J 50 | C21, C22 |
| | CCDSL 101J 50 | C17, C18 |
| | CCDSL 221J 50 | C3, C4 |
| | CKDYF 473Z 50 | C11, C12, C35, C36, C48 |
| | CCDSL 470J 50 | C65—C68 |

### RESISTORS

*Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.*

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | ACN-131 | R55, R56 Wire wound |
| | RS3L271J | R80 |
| | RS2L □□□J | R63, R64, R69, R81 |
| | RS1L □□□J | R82-R84 |
| | RD½PS □□□J | R61, R62, R65, R66, R73—R79 |
| ⚠ | RS¼PMFL □□□J | R47—R54, R57—R60, R70, R71 |
| | RD¼PM □□□J | R1—R46, R72 |

### SEMICONDUCTORS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| ★★ | NJM4558DX | Q1 |
| ★★ | 2SA798 | Q2, Q3 |
| ★★ | 2SC2705 | Q4, Q5 |
| ★★ | 2SC945A | Q6, Q7 |
| ★★ | 2SD438-E* (2SD438-F)* | Q8, Q9 |
| ★★ | 2SB560-E* (2SB560-F)* | Q10, Q11 |

*hfe of Q8—Q11 should have the same value.

| | | |
|---|---|---|
| ★★ | 2SD438 | Q12 |

| Mark | Part No. | Symbol & Description |
|---|---|---|
| ★ | WZ-157 (MZ-157) | D1, D2 |
| ★ | WZ-230 (MZ-230) | D3 |
| ⚠ ★ | 10E2FD | D4, D5 |
| ⚠ ★ | S4VB20F | D6 |
| ★ | WZ-032 | D7, D8 |
| ★ | US1035 (1S1555) (1S2076) | D9, D10 |

### OTHERS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | AKB-077 | Terminal 2P (PHONES) |
| | AKB-078 | Terminal 4P (TAPE2/ADAPTOR, TAPE1) |
| | AKB-079 | Terminal 6P (INPUT) |
| | AKE-102 | Terminal (SPEAKERS) |
| | AKH-016 | Transistor socket |

### Headphone assembly

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | AKN-041 | Headphone jack |

### Switch assembly

| Mark | Part No. | Symbol & Description |
|---|---|---|
| ★★ | ASE-014 | S3 Rotary switch (SPEAKERS) |

### Resistor Assembly

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | RD¼PM102J | R85 |

# 12. ADJUSTMENTS

### Idle Current

1. Set the SPEAKERS switch to the OFF position, turn the VOLUME all the way down and then turn power on for about 10 minutes.
2. After the power has been left on for about 10 minutes, confirm that the voltages between TP4 ⊕ and TP3 ⊖ (the left channel) and between TP1 ⊕ and TP2 ⊖ are each between 0.9mV and 101mV. If a voltage is below 0.9mV, cut the jumper wire of the channel where the problem exists (jumper wire A for the left, jumper wire B for the right).

*NOTE:*
*If a voltage is above 101mV, check the circuits to see if there is a malfunction.*

### Output Indicators (Level Meter)

1. Remove the front panel assembly following the directions in the disassembly section.
2. Set the SPEAKERS switch to the A position, the FUNCTION switch to the AUX setting and turn all other switches OFF.
   And connect an 8Ω resistor and AC voltmeter to the speaker output terminal.
3. Apply a 1kHz sine wave, 150mV signal to the AUX terminals and ajust the VOLUME (VR 1) so that the voltage at speaker terminal A is AC8.95V.
4. Adjust VR 5 (left) and VR 6 (right), the semi-fixed resistance of the control assembly so that the output indicator reading is 10 watts.

### Replacing the AF Assembly (AWK-199) P.C. Board

The AF assembly (AWK-199) used in the SA-530 can also be used in the SA-330. When replacing the AF assembly (AWK-199) of SA-530, cut jumper wire C (connected in parallel with R82, 120 ohms).

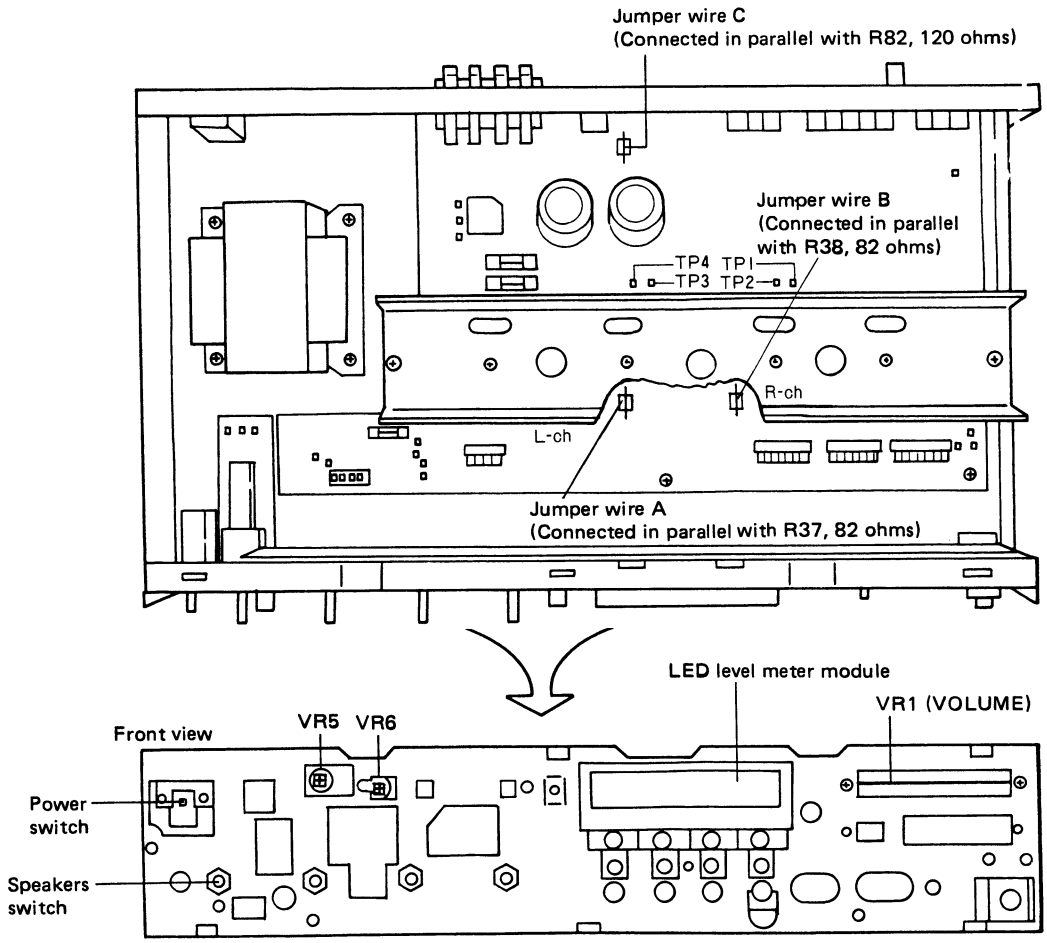



Fig. 12-1 Adjustment of idle current and output indicator

# 12. RÉGLAGE

### Courant déwatté

1. Régler sur OFF le sélecteur d'enceintes (SPEAKERS), réduire au maximum la commande de VOLUME et placer sous tension pendant 10 minutes environ.
2. Après ces quelque 10 minutes, vérifier si les tensions entre TP4 (+) et TP3 (-) (le canal gauche) et entre TP1 (+) et TP2 (-) se trouvent respectivement entre 0,9mV et 101mV. Si la tension est inférieure à 0,9mV, couper la liaison du canal où le problème se manifeste (liaision A pour le gauche ou liaison B pour le droit).

*Remarque:*
***Si une tension est supérieure à 100mV, férifier la présence éventuelle d'une défaillance dans les circuits.***

### Indicateurs de sortie (Niveau)

1. Déposer l'ensemble du panneau avant en suivant les explications de la section de démontage.
2. Placer le sélecteur d'enceintes (SPEAKERS) à la position A, le sélecteur de fonction (FUNCTION) à la position AUX et toutes les autres commandes sur OFF.
   Et brancher une résistance de 8Ω et un voit métre en CA aux bornes de sorties des enceintes.
3. Appliquer une onde sinusoïdale de 1kHz, un signal de 150mV aux bornes AUX et régler la commande de VOLUME (VR1) de sorte que la tension à la borne d'enceinte A soir 8,95V en courant alternatif.
4. Ajustar VT5 (gauche) et VR6 (droit), la résistance semi-fixe de l'ensemble de contrôle de sorte que la lecture de l'indicateur de sortie soit de 10 watts.

### Remplacement de la plaquette de circuit imprimé Ensemble AF (AWK-199)

L'ensemble AF (AWF-199) utilisé dans le SA-530, peut également servir dans le SA-330. Lors du remplacement de l'ensemble AF (AWK-199) du SA-530, couper la liaison C (raccordée en parallèle avec le R82, 120 ohms).

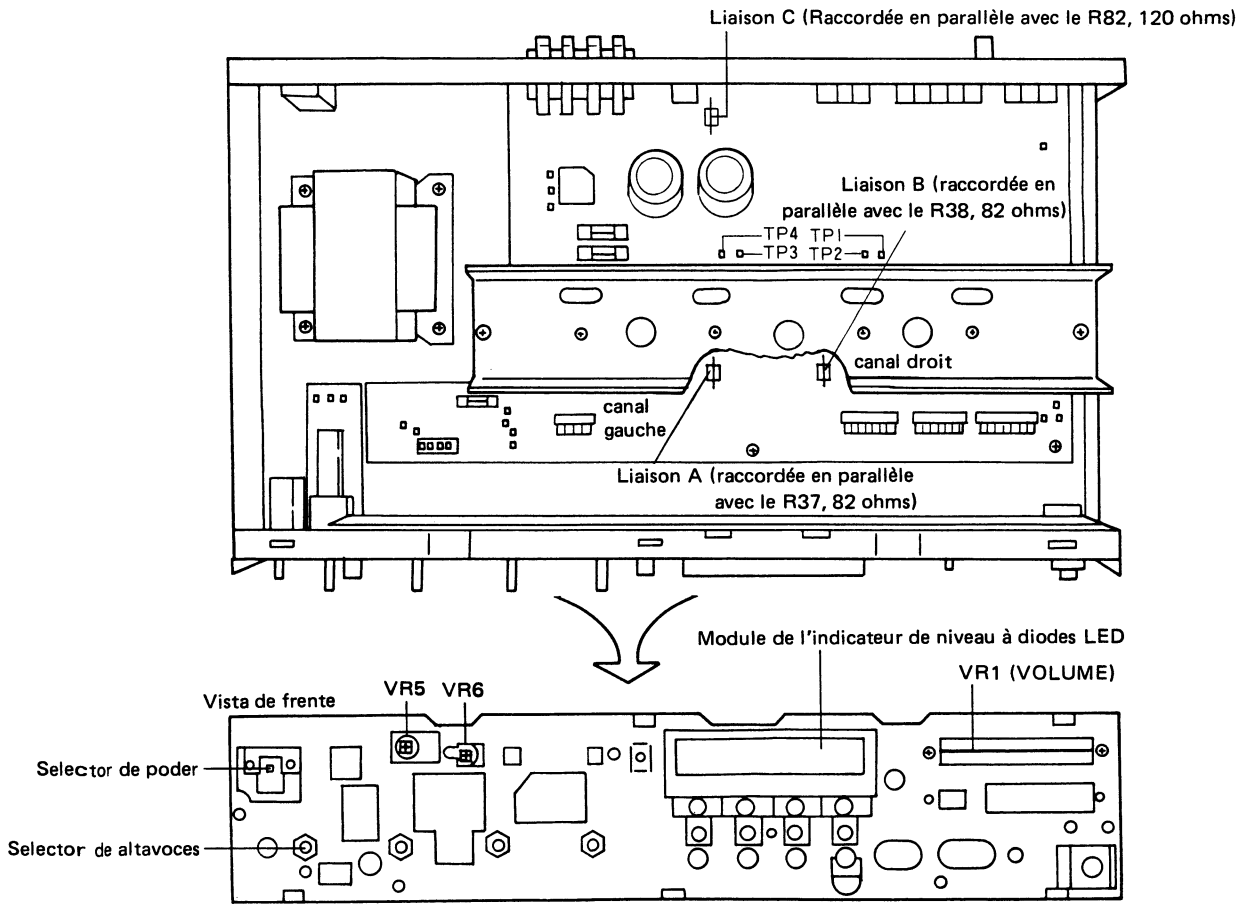

Liaison C (Raccordée en parallèle avec le R82, 120 ohms)
Liaison B (raccordée en parallèle avec le R38, 82 ohms)
TP4 TP1
TP3 TP2
canal droit
canal gauche
Liaison A (raccordée en parallèle avec le R37, 82 ohms)
Module de l'indicateur de niveau à diodes LED
VR1 (VOLUME)
Vista de frente
VR5 VR6
Selector de poder
Selector de altavoces

Fig. 12-1 Réglage du courant déwatté et de l'indicateur de sortie

# 12. ADJUSTE

### Corriente reactiva

1. Poner el selector de altavoces (SPEAKERS) en la posición OFF, reducir completamente el VOLUMEN y conectar la alimentación durante unos 10 minutos.
2. Después de haber dejado conectada la alimentación durante unos 10 minutos, confirmar que las tensiones entre TP4 (+) y TP3 (-) (canal izquierdo) y entre TP1 (+) y TP2 (-) están entre 0,9mV y 101mV. Si la tensión está por debajo de 0,9mV, cortar el cable de conexión provisional del canal donde exista el problema (cable de conexión provisional A para el izquierdo, y cable B para el derech).

*NOTA:*
*Si la tensión está por encima de los 100mV, comprobar los circuitos para ver si existe algún malfuncionamiento.*

### Indicadores de salida (Medidor de nivel)

1. Extraer el conjunto de panel frontal seiguiendo las instrucciones de la sección de desmontaje.
2. Poner el selector SPEAKERS en la posición A, el selector de función (FUNCTION) en la posición AUX, y poner todos los demas interruptores en las posiciones OFF.
   Entonces, conectar un presistor de 8ohmios y el voltimetro de CA al terminal de salida de altavoz.
3. Aplicar unda onda sinusoidal de 1kHz, y una señal de 150mV a los terminales AUX y ajustar el VOLUMEN (VR1) de modo que la tensión en el terminal A de altavoz sea de 8,95V CA.
4. Ajustar VR5 (izquierdo) y VR6 (derecho), en la resistencia semifija del conjunto de control de modo que el indicador de salida indique 10 vatios.

### Reemplazo del tablero PC del conjunto AF (AWK-199)

El conjunto AF (AWK-199) utilizado en el SA-530 también puede utilizarse en el SA-330. Cuando se reemplace el conjunto AF (AWK-199) del SA-530, cortar el cable de conexión provisional C (conectado en paralelo con la R82, 120 ohmios).

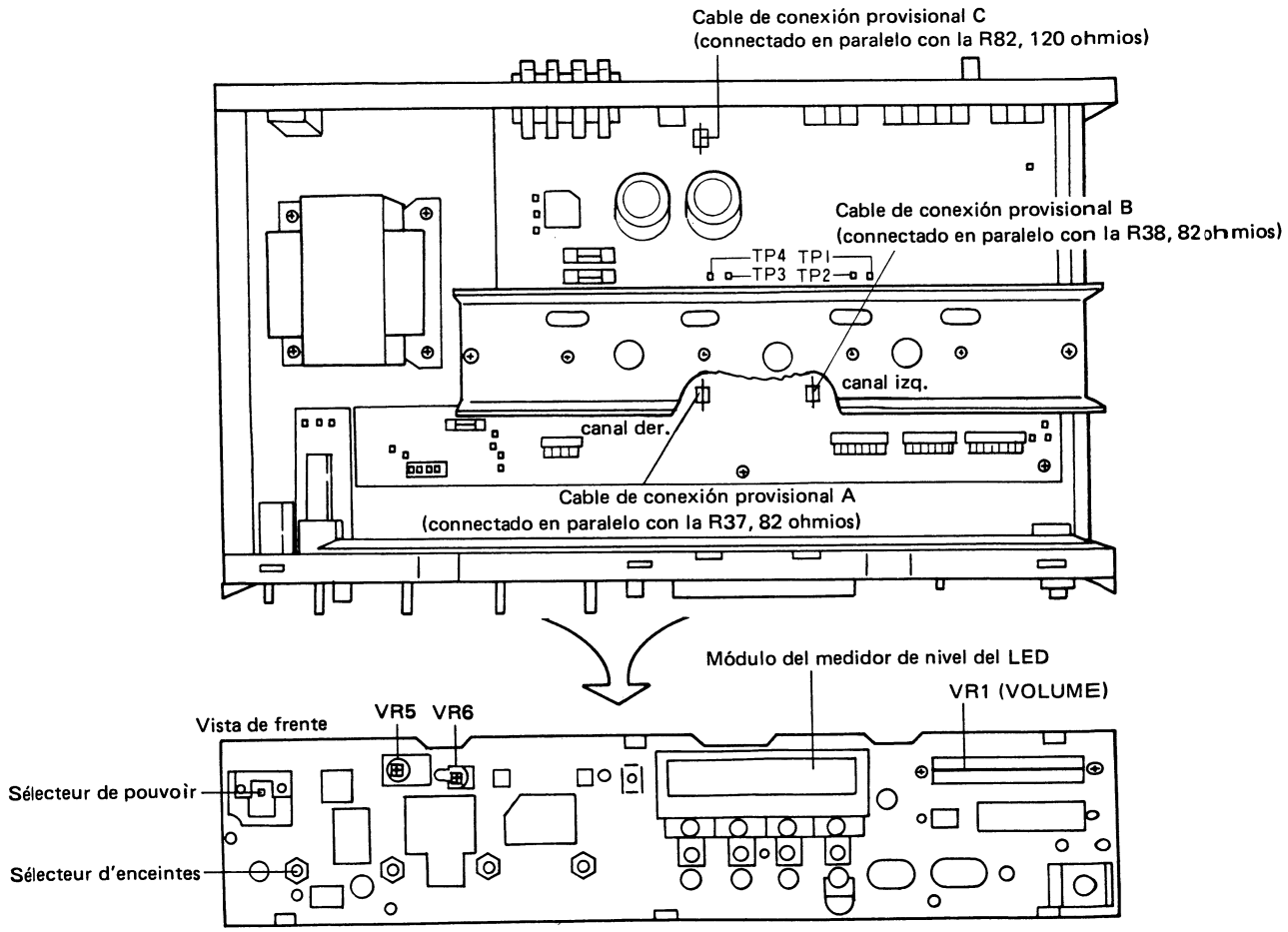

Cable de conexión provisional C
(connectado en paralelo con la R82, 120 ohmios)
Cable de conexión provisional B
(connectado en paralelo con la R38, 82 ohmios)
TP4 TP1
TP3 TP2
canal izq.
canal der.
Cable de conexión provisional A
(connectado en paralelo con la R37, 82 ohmios)
Módulo del medidor de nivel del LED
VR1 (VOLUME)
Vista de frente
VR5 VR6
Sélecteur de pouvoir
Sélecteur d'enceintes

Fig. 12-1 Ajuste de la corriente reactiva y del indicador de salida

# 13. FOR S,YP,HE,HB AND HEZ TYPES

## 13.1 CONTRAST PARTS

**SA-530/S, YP, HE, HB and HEZ types are the same as the SA-530/KU type except for following sections.**

### MISCELLANEOUS PARTS

| Mark | | Symbol & Description | Part No. | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | KU type | S type | YP type | HE type | HB type | HEZ type |
| ⚠ | ★ | T1 Power transformer (120V) | ATT-895 | ..... | ..... | ..... | ..... | ..... |
| ⚠ | ★ | T1 Power transformer (220V, 240V) | ..... | ..... | ATT-896 | ATT-896 | ATT-896 | ATT-896 |
| ⚠ | ★ | T1 Power transformer (110V, 120V, 220V, 240V) | ..... | ATT-897 | ..... | ..... | ..... | ..... |
| ⚠ | ★★ | FU1 Fuse (3.15A) | AEK-124 | ..... | ..... | ..... | ..... | ..... |
| ⚠ | ★★ | FU2, FU3 Fuse (5A) | AEK-126 | AEK-126 | ..... | ..... | ..... | ..... |
| ⚠ | ★★ | FU1, FU4 Fuse (1.6A) | ..... | AEK-121 | ..... | ..... | ..... | ..... |
| ⚠ | ★★ | FU1 Fuse (T1A) | ..... | ..... | AEK-402 | AEK-402 | AEK-402 | AEK-402 |
| ⚠ | ★★ | FU2, FU3 Fuse (T2.5A) | ..... | ..... | AEK-403 | AEK-403 | AEK-403 | AEK-403 |
| ⚠ | ★★ | FU4 Fuse (T2.5A) | ..... | ..... | ..... | AKE-403 | ..... | AEK-403 |
| ⚠ | ★★ | S1 Push switch (POWER) | ASG-539 | ASG-539 | ASG-522 | ASG-522 | ASG-522 | ASG-522 |
| ⚠ | ★★ | S2 Voltage selector switch | ..... | AKX-063 | ..... | ..... | ..... | ..... |
| ⚠ | | C1 Ceramic capacitor (0.01/AC125V) | ACG-017 | ..... | ..... | ..... | ..... | ..... |
| ⚠ | | C1 Ceramic capacitor (0.01/AC250V) | ..... | ACG-001 | ACG-001 | ACG-001 | ACG-001 | ACG-001 |
| | | C3 Ceramic capacitor | ..... | ..... | ..... | ..... | ..... | CQMA 223K 50 |
| | | Strain relief | ACE-327 | ..... | ..... | ..... | ..... | ..... |
| ⚠ | | AC power cord | ADG-052 | ADG-060 | ADG-067 | ADG-065 | ADG-063 | ADG-065 |
| ⚠ | | AC socket (AC OUTLETS) | AKP-501 | AKP-501 | ..... | AKP-502 | AKP-503 | AKP-502 |
| | | Screw (For voltage selector switch) | ..... | MTZ30P100FZK | ..... | ..... | ..... | ..... |
| | | Tapping screw (For SPEAKERS terminal) | ..... | ..... | ..... | ..... | ..... | ABA-115 |
| | | Operating instructions (English) | ARB-476 | ARB-481 | ARB-481 | ..... | ARB-481 | ..... |
| | | Operating instructions (English/German/French/Italian) | ..... | ..... | ..... | ARE-030 | ..... | ..... |
| | | Operating instructions (German) | ..... | ..... | ..... | ..... | ..... | ARC-016 |
| | | Operating instructions (Spanish) | ..... | ARC-021 | ..... | ..... | ..... | ..... |
| | | Packing case | AHE-030 | AHE-036 | AHE-036 | AHE-036 | AHE-036 | AHE-036 |

### P.C. BOARD ASSEMBLY

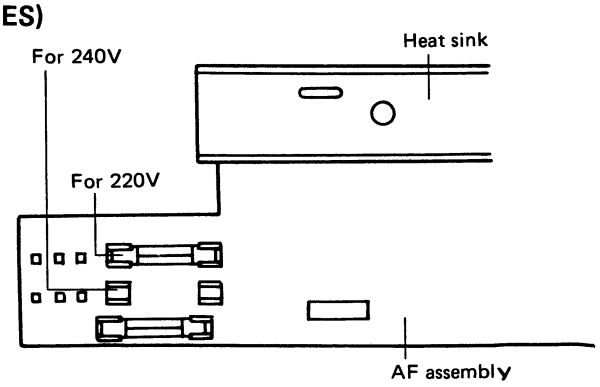
| Mark | Symbol & Description | Part No. | | | | | |
|---|---|---|---|---|---|---|---|
| | | KU type | S type | YP type | HE type | HB type | HEZ type |
| | AF assembly | AWK-199 | | | | | AWK-202 |

## LINE VOLTAGE SELECTION (FOR HE, HB, HEZ TYPES)

Line voltage can be changed as follows:

1. Disconnect the AC power cord.
2. Remove the bonnet case.
3. Take out the fuse from the P.C. board.
4. Re-install the fuse in the correct voltage indication.
5. Stick the line voltage lable on the rear panel.

| Description | Part No. |
|---|---|
| 220V label | AAX-193 |
| 240V label | AAX-192 |



## 13.2 PARTS LIST (FOR HEZ TYPE)
## AF ASSEMBLY (AWK-202)

### AF assembly

#### CAPACITORS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | ACH-239 | C42, C43 Electrolitic capacitor (5600/42V) |
| | ACG-019 | C44 Ceramic capacitor (0.01/ AC150V) |
| | CEANL 2R2M 50 | C1, C2 |
| | CEA 101M 50L-SF | C46 |
| | CEA 221M 25L-SF | C25, C26, C37, C40 |
| | CEA 331M 50L-SF | C38 |
| | CEA R33M 50L | C15, C16 |
| | CEANL 010M 50 | C19, C20 |
| | CEA 010M 50L | C13, C14 |
| | CEA 220M 25L | C23, C24, C39 |
| | CEA 470M 10L | C5, C6 |
| | CEA 470M 25L | C41, C47 |
| | CEA 470M 50L | C45 |
| | CEA 221M 10L | C29, C30 |
| | CQMA 222J 50 | C7, C8 |
| | CQMA 822J 50 | C9, C10 |
| | CCDSL 150K 500 | C27, C28 |
| | CCDSL 151K 500 | C31—C34 |
| | CCDSL 680J 50 | C21, C22 |
| | CCDSL 181J 50 | C17, C18 |
| | CKDYF 473Z 50 | C11, C12, C35, C36, C48 |
| | CCDSL 470J 50 | C63—C68 |
| | CQMA 472K 50 | C59—C62 |
| | CKDYB 391K 50 | C3, C4, C49—C58 |

#### RESISTORS

*Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.*

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | ACN-131 | R55, R56 Wire wound |
| | RS3L271J | R80 |
| | RS2L □□□J | R63, R64, R69, R81 |
| | RS1L □□□J | R82—R84 |
| | RD½PS □□□J | R61, R62, R65, R66, R73—R79 |
| ⚠ | RS¼PMFL □□□J | R47—R54, R57—R60, R70, R71 |
| | RD¼PM □□□J | R1—R46, R72 |

#### SEMICONDUCTORS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| ★★ | NJM4558DX | Q1 |
| ★★ | 2SA798 | Q2, Q3 |
| ★★ | 2SC2705 | Q4, Q5 |
| ★★ | 2SC945A | Q6, Q7 |
| ★★ | 2SD438-E* (2SD438-F)* | Q8, Q9 |
| ★★ | 2SB560-E* (2SB560-F)* | Q10, Q11 |

*hfe of Q8—Q11 should have the same value.

| Mark | Part No. | Symbol & Description |
|---|---|---|
| ★★ | 2SD438 | Q12 |
| ★ | WZ-157 (MZ-157) | D1, D2 |
| ★ | WZ-230 (MZ-230) | D3 |
| ⚠ ★ | 10E2FD | D4, D5 |
| ⚠ ★ | S4VB20F | D6 |
| ★ | WZ-032 | D7, D8 |
| ★ | US1035 (1S1555) (1S2076) | D9, D10 |

#### OTHERS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | AKB-077 | Terminal 2P (PHONES) |
| | AKB-078 | Terminal 4P (TAPE2/ADAPTOR, TAPE1) |
| | AKB-079 | Terminal 6P (INPUT) |
| | AKE-102 | Terminal (SPEAKERS) |
| | AKH-016 | Transistor socket |

### Headphone assembly

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | AKN-041 | Headphone jack |

### Switch assembly

| Mark | Part No. | Symbol & Description |
|---|---|---|
| ★★ | ASE-014 | S3 Rotary switch (SPEAKERS) |

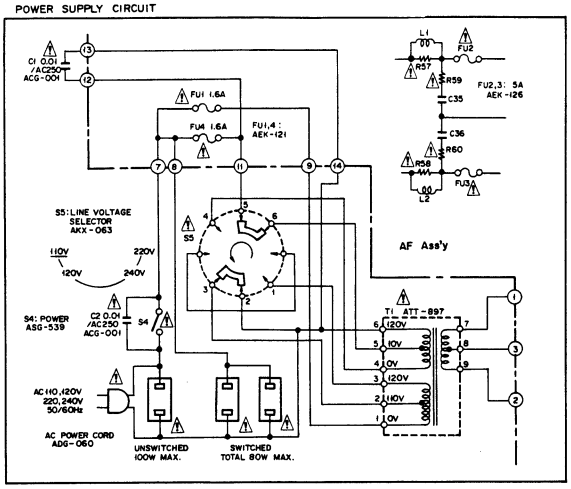
### Resistor assembly

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | RD¼PM102J | R85 |

## 13.3 SCHEMATIC DIAGRAMS

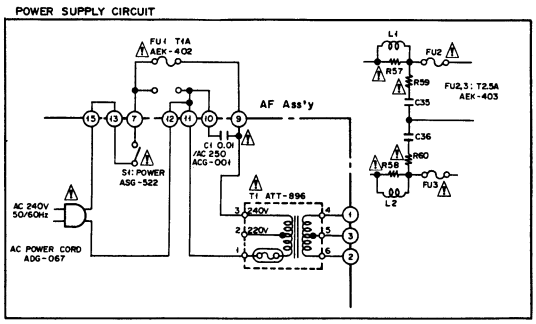
### For S type

POWER SUPPLY CIRCUIT



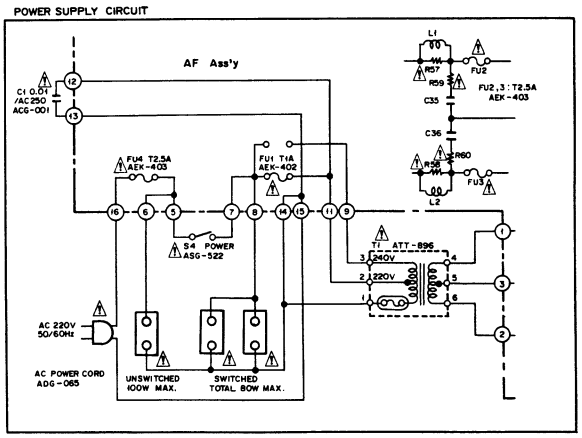

### For YP type

POWER SUPPLY CIRCUIT



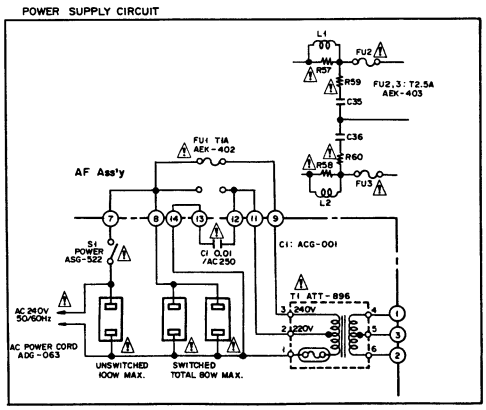

### For HE type

POWER SUPPLY CIRCUIT



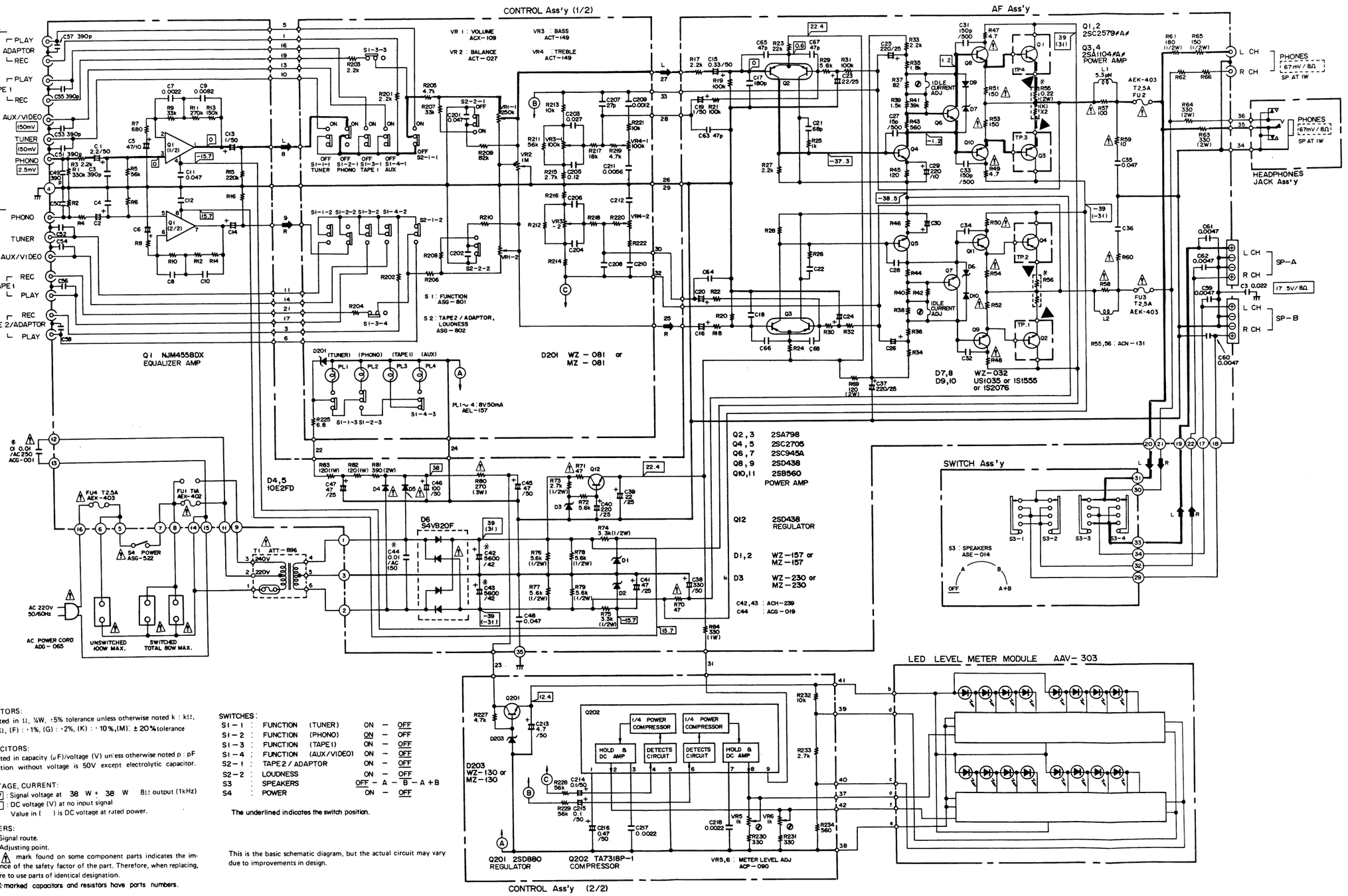

### For HB type

POWER SUPPLY CIRCUIT



**For HEZ type**

*NOTE:*
*The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.*




1. RESISTORS:
Indicated in Ω, ¼W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10%, (M) : ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
V : Signal voltage at 38 W + 38 W 8Ω output (1kHz)
: DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.

4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

SWITCHES:

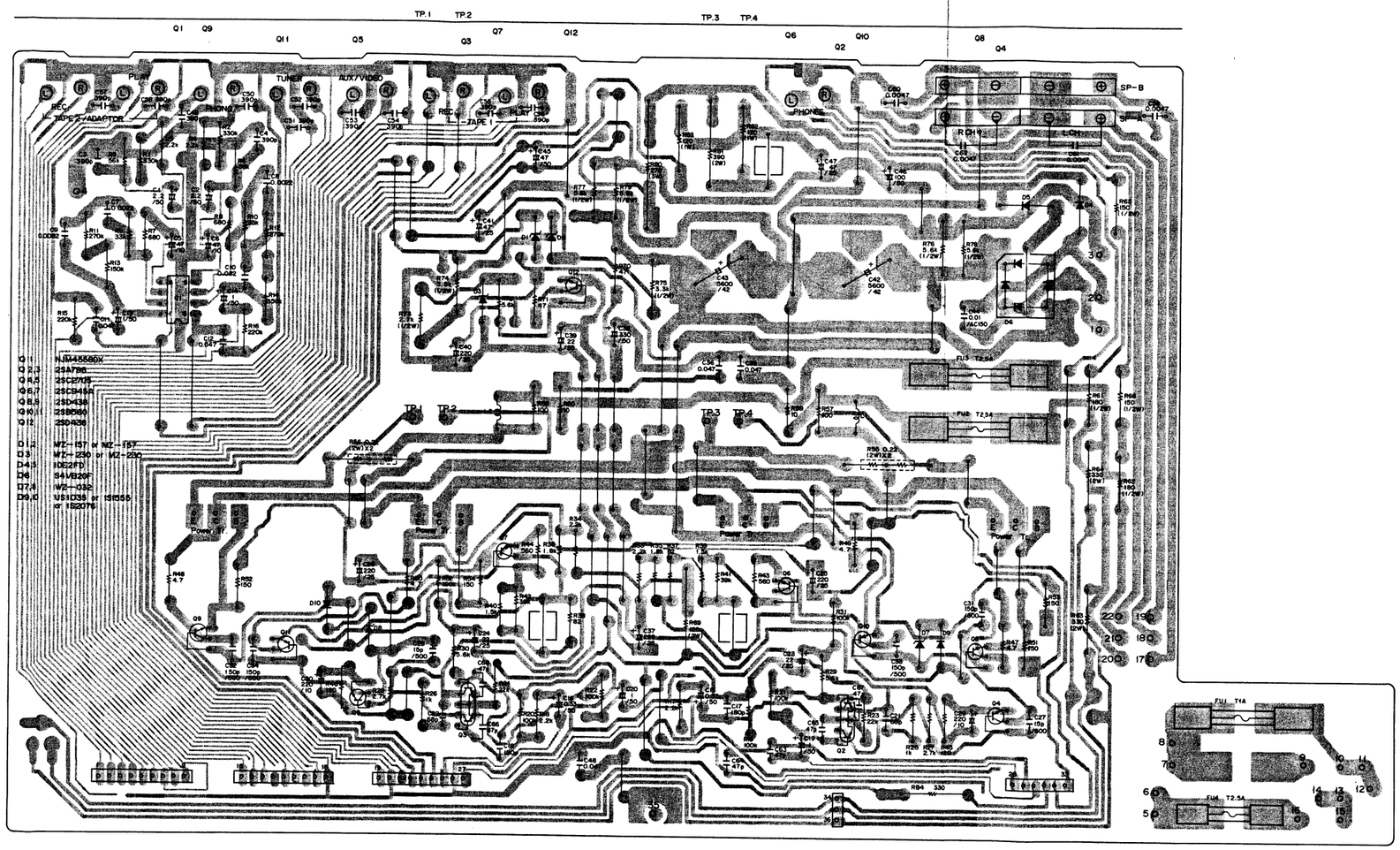
| | | | | |
|---|---|---|---|---|
| S1-1 | : | FUNCTION | (TUNER) | ON – OFF |
| S1-2 | : | FUNCTION | (PHONO) | ON – OFF |
| S1-3 | : | FUNCTION | (TAPE1) | ON – OFF |
| S1-4 | : | FUNCTION | (AUX/VIDEO) | ON – OFF |
| S2-1 | : | TAPE2 / ADAPTOR | | ON – OFF |
| S2-2 | : | LOUDNESS | | ON – OFF |
| S3 | : | SPEAKERS | | OFF – A – B – A+B |
| S4 | : | POWER | | ON – OFF |

The underlined indicates the switch position.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

## 13.4 P.C. BOARD PATTERNS

AF Ass'y




## 13.5 SPECIFICATIONS

### SPECIFICATIONS

The specifications for SA-530/HE, HB, HEZ, S and YP types are the same as the SA-530/KU type except for following sections.

### Amplifier Section . . . HE, HB, HEZ, S and YP types

Continuous Power Output
- 30 to 20,000Hz . . 38W + 38W (T.H.D. 0.08%, 8 ohms)
- 1kHz (DIN) . . . . . 44W + 44W (T.H.D. 1%, 8 ohms)

Total Harmonic Distortion (30Hz to 20,000Hz, 8 ohms, from AUX/VIDEO)

Continuous rated power output . . . . No more than 0.08%

Hum and Noise (DIN, continuous Power/50mW)
- PHONO . . . . . 71dB/62dB
- TUNER AUX/VIDEO, TAPE PLAY 1,2/ADAPTOR . . . . . 88dB/62dB

*NOTE:*
***The damping factor of KU type is not applied to HEZ type.***

### Miscellaneous

Power Requirements
- HB, YP types . . . . . AC240V, 50/60Hz
- HE, HEZ types . . . . . AC220V, 50/60Hz
- S type . . . AC110V, 120V, 220V and 240V, 50/60Hz

Power Consumptions
- HE, HB, HEZ, YP types . . . . . 230W
- S type . . . . . 90W